Remarks

Claims 22-45, 47-56 and 58-63 are pending in the captioned application.

The Office Action stated that claims 22-45 are allowed.

A. The Office Action rejected claims 47 and 54-56 under 35 U.S.C. §135(b)(2) as having been made in the captioned application more than one year after claims 6 and 13-15 of application Ser. No. 09/817,268 (claiming a priority date of 30 June 1999) were published on 25 October 2001. However, §135(b)(2) only applies to "an application filed after the [published] application...." In *Ryan v. Young*, Paper No. 116 in Int. Nos. 105,504 and 105,505 (PTOBPAI March 4, 2008), the Board stated that "[t]he language of §120 permits an applicant to rely on its provisions for all purposes during examination of a patent application, including establishing an earlier date for avoiding both §102(b) bars and §135(b)(2) bars." *Id.* at 27.

The captioned application is a descendant in a line of successively co-pending continuation applications from PCT/NZ95/00106, each of which claims priority through each of its ancestor applications. The disclosure filed as the captioned application on 18 December 2001 is identical to the disclosure filed as the international application on 16 October 1995 and to each of the intervening applications. The captioned application is a continuation of application Ser. No. 09/713,614, filed 15 November 2000 and issued as US 6,343,924 on 12 December 2002, which was a continuation of application Ser. No. 08/817,445, which was the U.S. national stage application of the international application with a §371(c) date of 30 April 1997 and issued as US 6,198,458 on 6 March 2001.

Therefore, pursuant to 35 U.S.C. §120 and *Ryan*, the captioned application has an effective filing date of 16 October 1995 for all purposes, including avoiding a §135(b)(2) bar. The Applicants respectfully traverse the §135(b)(2) rejection of the claims 47 and 54-56 based on Ser. No. 09/817,268, at least because the effective filing date of the captioned application is

more than six years before the publication of application Ser. No. 09/817,268 on 25 October 2001.

B. The Office Action stated that claims 48-53 and 58-63 were objected to as depending on a rejected base claim, but would be allowable if rewritten in independent form. In view of the discussion above regarding claims 47 and 54-56, the Applicants submit that claims 48-50, 58 and 59 that depend from claim 47 should be allowable, and that claims 60 and 61 that depend from claim 54 should be allowable. Claims 51-53, 62 and 63 do *not* depend from a rejected base claim and should be allowable.

C. The Office Action objected to the Applicants' April 2004 request for an interference with two patents as not complying with various provisions of Subpart E of Part 41 of Title 37 of the Code of Federal Regulations that did not become effective until September 2004, specifically 37 CFR §§41.202(a)(2), (3), (4) and (6). The Applicants do not understand those provisions to have been retroactively applicable to requests that already had been submitted, as is the case in the captioned application. Consequently, the objection should be overcome for that reason alone.

Nonetheless, in the interest of expediting prosecution of the captioned application, substantively responds to the objection as follows:

With respect to §41.202(a)(2), please see Attachment A that recites nine proposed counts. Please see the Attachment B table that shows how the claims of Pat. No. 6,677,896 ("the '896 patent"), Pat. No. 6,239,744 ("the '744 patent"), and the captioned application Ser. No. 10/025,155 ("the '155 application") correspond with the different proposed counts recited in Attachment A. Please see the chart on pages 3-4 of the Applicants' 20 April 2004 request for an

interference showing which claims of the captioned application interfere with which claims of the '896 and '744 patents.

With respect to §41.202(a)(3), please see the Attachment C claim charts comparing at least one claim of each party corresponding to each proposed count (recited in Attachment A) and showing why the claims interfere within the meaning of §41.203(a).

With respect to §41.202(a)(4), the Applicants will prevail on priority at least because the effective filing date of the captioned application is 16 October 1995 (as explained above), and the two patents identify a priority date of 30 June 1999.

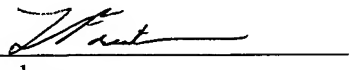
With respect to §41.202(a)(6), please see the Attachment D chart that shows where each proposed count (recited in Attachment A) is disclosed in the captioned application (and in all of its ancestor applications going back to the corresponding international application PCT/NZ95/00106) and in foreign priority application NZ 272778.

Therefore, the objection should be overcome in view of the foregoing and the Attachments A through D.

The Applicants submit that the claims are in condition for allowance, and respectfully request reconsideration and a determination that the claims are allowable. If a telephone call would expedite prosecution of the captioned application, the Applicants request that a telephone call be made to the undersigned.

Respectfully submitted,

Date: 5 November 2009



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ATTACHMENT A
PROPOSED COUNTS FOR HEINZ (Application Ser. No. 10/025,155)
v. SINGER (Pat. No. 6,239,744 and Pat. No. 6,677,896)

(pursuant to 37 CFR §41.202(a)(2))

Proposed Count I:

An antenna control system comprising:

a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;

an antenna controller communicating with said sensor for controlling said antenna position; and

a main controller communicating with said antenna controller in order to control said antenna controller.

Proposed Count II:

An antenna control system for controlling a plurality of antennas comprising:

a plurality of sensors each for detecting positions of a respective one of said antennas;

a plurality of antenna controllers each communicating with corresponding sensors of said plurality of sensors for controlling a position of said associated antenna; and

a main controller communicating with said antenna controllers in order to control said antenna controllers.

Proposed Count III:

An antenna control system comprising:

a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;

an antenna controller communicating with said sensor for controlling said antenna position;

a main controller communicating with said antenna controller in order to control said antenna controller;

a user interface communicating with said main controller to operate said main controller;

wherein the position of the down-tilt antenna is an electrical down-tilt.

Proposed Count IV:

An antenna control system comprising:

a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;

an antenna controller communicating with said sensor for controlling said antenna position;

a main controller communicating with said antenna controller in order to control said antenna controller;

a user interface communicating with said main controller to operate said main controller;

wherein the position of the down-tilt antenna is a position of at least one phase shifter.

Proposed Count V:

An antenna control system for controlling a plurality of antennas located on a tower, each antenna having a position, said antenna control system comprising:

a plurality of sensors, each sensor associated with one of said plurality of antennas for detecting said antenna positions;

a plurality of antenna controllers each connected to a respective one of said plurality of sensors for reading said detected antenna positions and for adjusting said antenna positions based on said detected antenna positions;

a main controller communicating with said plurality of antenna controllers for controlling said plurality of antenna controllers to adjust said antenna positions;

a plurality of motor driving assemblies for adjusting said antenna positions, wherein each of said plurality of motor driving assemblies are controlled by respective ones of said plurality of antenna controllers;

wherein the motor driving assemblies comprise a gear train of phase shifters to steer radiation emitted from said antennas; a stepper motor to drive said gear train of phase shifters; a gear shaft disposed between said gear train and said stepper motor; and a stepper-motor-driver for powering said stepper motor.

Proposed Count VI:

A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:

(A) establishing a current position of the down-tilt antenna by;

(i) sending an antenna check command to an antenna controller,

(ii) reading a tilt position stored in a memory of the antenna controller, and

(iii) sending the tilt position read from the memory to a main controller; and

(B) adjusting the tilt of the down-tilt antenna by;

(i) sending a change-tilt command to the main controller,

(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and

(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna.

Proposed Count VII:

A method of performing a system check on a tilt antenna control system, said method comprising the steps of:

(A) requesting a system check by a user via a user interface;

(B) transmitting an antenna check command from a main controller to an addressed one of a plurality of antenna controllers;

(C) returning an antenna position from the addressed antenna controller to the main controller; and

(D) determining whether the addressed antenna controller responded.

Proposed Count VIII:

A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:

(A) establishing a current position of the down-tilt antenna by;

(i) sending an antenna check command to an antenna controller,

(ii) reading a tilt position stored in a memory of the antenna controller, and

(iii) sending the tilt position read from the memory to a main controller; and

(B) adjusting the tilt of the down-tilt antenna by;

(i) sending a change-tilt command to the main controller,

(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and

(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna;

wherein the tilt position is an electrical down-tilt.

Proposed Count IX:

A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:

(A) establishing a current position of the down-tilt antenna by;

(i) sending an antenna check command to an antenna controller,

(ii) reading a tilt position stored in a memory of the antenna controller, and

(iii) sending the tilt position read from the memory to a main controller; and

(B) adjusting the tilt of the down-tilt antenna by;

(i) sending a change-tilt command to the main controller,

(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and

(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna;

wherein the tilt position is a position of at least one phase shifter.

ATTACHMENT B

Correspondence of Claims of Pat. Nos. 6,677,896 ("896) and 6,239,744 ('744) and of Application Ser. No. 10/025,155 ('155) to Proposed Counts

(pursuant to 37 CFR §41.202(a)(2))

PROPOSED COUNT	CLAIM	EXPLANATION
I	'896 1	Claim includes additional limitation of **[A]** "a user interface communicating with said main controller to operate said main controller." A user interface communicating with a controller to operate the controller was well-known in the art, and does not patentably distinguish the claim from the proposed count.
I	'896 2	Claim includes additional limitations of **[A]** (see '896 1) and **[B]** "the user interface transmits data to said main controller to position said down-tilt antenna and receives data from said main controller indicating said antenna position." This does not patentably distinguish the claim from the proposed count because the proposed count already includes the sensor detecting the antenna position, the antenna controller communicating with the sensor to control the antenna position, and the main controller communicating with and controlling the antenna controller; and a user interface communicating with the main controller was discussed in connection with limitation **[A]** (see '896 1).
I	'896 3	Claim includes additional limitations of **[A]** (see '896 1), **[B]** (see '896 2), and **[C]** "said main controller informs said user interface that said main controller is unable to communicate with said antenna controller." A controller reporting to a user interface that it could not communicate with another controller to perform a requested operation was well-known in the art, and does not patentably distinguish the claim from the proposed count.
I	'896 4	Claim includes additional limitations of **[A]** (see '896 1), **[B]** (see '896 2), and **[D]** "said main controller informs said user interface that it is unable to adjust said antenna position to a desired antenna position." A controller reporting to a user interface that it could not succeed in effecting a requested operation was well-known in the art, and does not patentably distinguish the claim from the proposed count.
I	'896 5	Claim includes additional limitations of **[A]** (see '896 1) and **[E]** "said user interface is remotely located from said main controller." A user interface being remotely located from a controller was well-known in the art, and does not patentably distinguish the claim from the proposed count.
I	'896 6	Claim includes additional limitations of **[A]** (see '896 1) and **[F]** "said user interface communicates with the main controller over a wireless interface." A user interface communicating with a controller over a wireless interface was well-known in the art, and does not patentably

		distinguish the claim from the proposed count.
I	'896 7	Claim includes additional limitations of **[A]** (see '896 1) and **[G]** "said user interface communicates with the main controller over a telephone line." A user interface communicating with a controller over a telephone line was well-known in the art, and does not patentably distinguish the claim from the proposed count.
I	'896 8	Claim includes additional limitations of **[H]** "said main controller is remotely located from said down-tilt antenna" (a controller being remotely located from a physical component being controlled was well-known in the art, and does not patentably distinguish the claim from the proposed count) and **[I]** "an antenna controller memory connected to said antenna controller for storing at least one of an antenna address and said antenna position." A memory being connected to a controller for storing data regarding the state of a physical component being controlled was well-known in the art, and does not patentably distinguish the claim from the proposed count.
I	'896 9	Claim includes additional limitations of **[H]** (see '896 8), **[I]** (see '896 8), and **[J]** "a main controller memory connected to said main controller for storing at least one of an antenna address and said antenna position." A memory being connected to a controller for storing data regarding the state of a physical component being controlled was well-known in the art, and does not patentably distinguish the claim from the proposed count.
I	'896 10	Claim includes additional limitations of **[H]** (see '896 8), **[I]** (see '896 8), **[K]** "a motor for adjusting said antenna position" (a motor for adjusting the position of a physical component being controlled was well-known in the art, and does not patentably distinguish the claim from the proposed count) and **[L]** "a driver connected to said motor and said antenna controller for activating said motor." A driver interfacing between a controller and a physical component being controlled was well-known in the art, and does not patentably distinguish the claim from the proposed count.
I	'896 26	Claim includes additional limitations of **[A]** (see '896 1), **[H]** (see '896 8) and **[I]** (see '896 8), and **[M]** the limitation of a sensor for determining the down-tilt of the antenna **(a)** recites that the sensor detects a position of components used to down-tilt the antenna (detecting a position of components used to down-tilt the antenna is not patentably distinguishable from detecting a position of the down-tilt antenna; they are just different words to describe the same subject matter) and **(b)** does not recite that the down-tilt position is without respect to a satellite position. The last difference in wording also is not patentably distinguishing because the position of a down-tilt antenna is not concerned with the geographic position of a satellite or orienting the antenna to acquire an optimum strength signal from a satellite. Instead, an inherent characteristic of a down-tilt antenna is that its down-tilt position is adjustable with respect to cell coverage to reduce cell site

		overlap by adjusting vertical transmission angle with changing conditions.
I	'896 27	Claim includes additional limitations of **[A]** (see '896 1), **[E]** (see '896 5), **[H]** (see '896 8) and **[I]** (see '896 8), and wording of **[M]** (see '896 26).
I	'896 28	Claim includes additional limitations of **[A]** (see '896 1), **[B]** (see '896 2), **[H]** (see '896 8) and **[I]** (see '896 8), and wording of **[M]** (see '896 26).
I	'896 29	Claim includes additional limitations of **[A]** (see '896 1), **[F]** (see '896 6), **[H]** (see '896 8) and **[I]** (see '896 8), and wording of **[M]** (see '896 26).
I	'896 30	Claim includes additional limitations of **[A]** (see '896 1), **[E]** (see '896 5), **[G]** (see '896 7), **[H]** (see '896 8) and **[I]** (see '896 8), and wording of **[M]** (see '896 26).
I	'744 1	**[N]** Claim's preamble recites that **(a)** the antenna control system is for a land-based mobile radio system, and the limitation of a sensor for detecting the down-tilt of the antenna recites that **(b)** the down-tilt position is with respect to cell coverage rather than reciting that **(c)** it is without respect to a satellite position. This difference in wording is not patentably distinguishing as discussed with respect to **[M] (b)** (see '896 26).
I	'744 2	Claim includes additional limitation of **[H]** (see '896 8), and wording of **[N]** (see '744 1).
I	'744 3	Claim includes additional limitation of **[A]** (see '896 1), and wording of **[N]** (see '744 1).
I	'744 4	Claim includes additional limitations of **[A]** (see '896 1) and **[E]** (see '896 5), and wording of **[N]** (see '744 1).
I	'744 5	Claim includes additional limitations of **[B]** (see '896 2) and **[H]** (see '896 8), and wording of **[N]** (see '744 1).
I	'744 6	Claim includes additional limitations of **[A]** (see '896 1) and **[F]** (see '896 6), and wording of **[N]** (see '744 1).
I	'744 7	Claim includes additional limitations of **[A]** (see '896 1) and **[G]** (see '896 7), and wording of **[N]** (see '744 1).
I	'744 8	Claim includes additional limitations of **[B]** (see '896 2), **[C]** (see '896 3) and **[H]** (see '896 8), and wording of **[N] (a)** and **(c)** (see '744 1).
I	'744 9	Claim includes additional limitations of **[B]** (see '896 2), **[D]** (see '896 4) and **[H]** (see '896 8), and wording of **[N] (a)** and **(c)** (see '744 1).
I	'744 10	Claim includes additional limitation of **[I]** (see '896 8), and wording of **[N] (a)** and **(c)** (see '744 1).
I	'744 11	Claim includes additional limitation of **[J]** (see '896 9), and wording of **[N] (a)** and **(c)** (see '744 1).
I	'744 12	Claim includes additional limitations of **[K]** (see '896 10) and **[L]** (see '896 10), and wording of **[N]** (see '744 1).
I	'155 22	Claim includes wording of **[N] (a)** and **(b)** (see '744 1).
I	'155 23	Claim includes additional limitation of **[H]** (see '896 8), and wording of **[N] (a)** and **(b)** (see '744 1).

I	'155 24	Claim includes additional limitation of **[A]** (see '896 1), and wording of **[N]** **(a)** and **(b)** (see '744 1).
I	'155 25	Claim includes additional limitations of **[B]** (see '896 2) and **[H]** (see '896 8), and wording of **[N]** **(a)** and **(b)** (see '744 1).
I	'155 26	Claim includes additional limitations of **[B]** (see '896 2), **[C]** (see '896 3) and **[H]** (see '896 8), and wording of **[N]** **(a)** and **(b)** (see '744 1).
I	'155 27	Claim includes additional limitations of **[B]** (see '896 2), **[D]** (see '896 4) and **[H]** (see '896 8), and wording of **[N]** **(a)** and **(b)** (see '744 1).
I	'155 28	Claim includes additional limitation of **[I]** (see '896 8), and wording of **[N]** **(a)** and **(b)** (see '744 1).
I	'155 29	Claim includes additional limitation of **[J]** (see '896 9), and wording of **[N]** **(a)** and **(b)** (see '744 1).
I	'155 30	Claim includes additional limitations of **[K]** (see '896 10) and **[L]** (see '896 10), and wording of **[N]** **(a)** and **(b)** (see '744 1).
I	'155 47	Claim includes additional limitation of **[A]** (see '896 1).
I	'155 48	Claim includes additional limitations of **[A]** (see '896 1) and **[B]** (see '896 2).
I	'155 49	Claim includes additional limitations of **[A]** (see '896 1), **[B]** (see '896 2) and **[C]** (see '896 3).
I	'155 50	Claim includes additional limitations of **[A]** (see '896 1), **[B]** (see '896 2) and **[D]** (see '896 4).
I	'155 51	Claim includes additional limitations of **[H]** (see '896 8) and **[I]** (see '896 8).
I	'155 52	Claim includes additional limitations of **[H]** (see '896 8), **[I]** (see '896 8) and **[J]** (see '896 9).
I	'155 53	Claim includes additional limitations of **[H]** (see '896 8), **[I]** (see '896 8), **[K]** (see '896 10) and **[L]** (see '896 10).
I	'155 62	Claim includes additional limitations of **[A]** (see '896 1), **[H]** (see '896 8) and **[I]** (see '896 8), and wording of **[M]** (see '896 26).
I	'155 63	Claim includes additional limitations of **[A]** (see '896 1), **[B]** (see '896 2), **[H]** (see '896 8) and **[I]** (see '896 8), and wording of **[M]** (see '896 26).
II	'744 13	Claim is identical in scope to proposed count.
II	'744 14	Claim includes additional limitations of **[A]** (see '896 1) and **[O]** "said user interface is a remote interface that transmits and receives data to operate said main controller." A remote user interface that transmits and receives data to operate a controller does not distinguish the claim from the proposed count as discussed in connection with limitations **[B]** (see '896 2) and **[E]** (see '896 5).
II	'744 15	Claim includes additional limitations of **[A]** (see '896 1), **[O]** (see '744 14) and **[P]** "said transmitted data is antenna position data, controlling said main controller to place at least one of said antennas in a designated position." Transmitting antenna position data to control a position of one of the antennas does not distinguish the claim from the proposed count as discussed in connection with limitation **[O]** (see '744 14).

II	'744 16	Claim includes additional limitation of **[Q]** "a serial interface connecting said main controller and said antenna controllers." A serial interface between two controllers was well-known in the art, and does not patentably distinguish the claim from the proposed count.
II	'744 17	Claim includes additional limitation of **[R]** "a parallel interface connecting said main controller to each of said antenna controllers." A parallel interface between two controllers was well-known in the art, and does not patentably distinguish the claim from the proposed count.
II	'744 18	Claim includes additional limitation of **[S]** "a wireless communication interface including a plurality of transceivers individually connected to respective antenna controllers of said plurality of antenna controllers and a transceiver connected to said main controller for providing communications between said plurality of antenna controllers and said main controller." Wireless communication between controllers via transceivers connected to the respective controllers was well-known in the art, and does not patentably distinguish the claim from the proposed count.
II	'744 19	Claim includes additional limitation of **[T]** "a plurality of antenna controller memories, where each antenna controller memory is respectively connected to each of said plurality of antenna controllers for storing at least one of an antenna address and said antenna position." As discussed in connection with limitation **[I]** (see '896 8), a memory being connected to a controller for storing data regarding the state of a physical component being controlled was well-known in the art, and does not patentably distinguish the claim from the proposed count.
II	'744 20	Claim includes additional limitation of **[J]** (see '896 9).
II	'744 21	Claim includes additional limitations of **[U]** "a plurality of motors each for adjusting said position of the associated antennas" (as discussed in connection with limitation **[K]** (see '896 10), a motor for adjusting the position of a physical component being controlled was well-known in the art and does not patentably distinguish the claim from the proposed count), and **[V]** "a driver connected to each of said plurality of motors for driving said plurality of motors." As discussed in connection with limitation **[L]** (see '896 10), a driver for driving a physical component being controlled was well-known in the art and does not patentably distinguish the claim from the proposed count.
II	'744 22	Claim includes additional limitation of **[W]** "data is communicated between said main controller and said plurality of antenna controllers using a packet protocol where the packet contains an antenna address and data." Communicating data between controllers using a packet protocol, where the packet contains information necessary to effect the desired operation, was well-known in the art and does not patentably distinguish the claim from the proposed count.
II	'744 23	Claim includes additional limitations of **[W]** (see '744 22) and **[X]** "said data is a command requesting one of the antenna controller to change said antenna position and report said antenna positions." Data in a

		packet comprising commands to effect the desired operations was well-known in the art and does not patentably distinguish the claim from the proposed count.
II	'744 24	Claim includes additional limitations of **[W]** (see '744 22), **[X]** (see '744 23) and **[Y]** "said data includes a fault indicating one said antenna controllers was not able to change said position of an associated one of said antennas." Data in a packet comprising a fault message indicating a requested operation could not be accomplished was well-known in the art and does not patentably distinguish the claim from the proposed count.
II	'744 25	**[Z]** Claim's preamble recites **(a)** that the antennas are located on a tower (location of antennas on a tower was well-known in the art and does not patentably distinguish the claim from the proposed count), and **(b)** that each antenna has a position (merely rewording of what is already in the sensor limitation); **(c)** the sensor limitation is reworded consistent with the rewording in the preamble; **(d)** the antenna controller limitation is reworded from "...communicating with corresponding sensors of said plurality of sensors for controlling a position of said associated antenna" to "...connected to a respective one of said plurality of sensors for reading said detected antenna positions and for adjusting said antenna positions based on said detected antenna positions" (in the context of the claim, a controller communicating with a sensor to control a position of a physical component being controlled is not patentably distinguishable from a controller connecting to a sensor to read a position of physical component being detected and to adjust that position based on the position being read); and **(e)** the main controller limitation is reworded from "said antenna controllers" to "said plurality of antenna controllers" and from "in order to control said antenna controllers" to "to adjust said antenna positions." These differences in wording are not patentably distinguishing in the context of the claim.
II	'744 26	Claim includes additional limitation of **[AA]** "said main controller is remotely located from said plurality of antenna controllers" (two controllers that communicate with each other being remotely located from each other was well-known in the art, and does not patentably distinguish the claim from the proposed count), and wording of **[Z]** (see '744 25).
II	'744 27	Claim includes additional limitation of **[BB]** "said main controller is remotely located from said tower" (as discussed in connection with limitation **[H]** (see '896 8), a controller being remotely located from a physical component being controlled was well-known in the art; and as discussed in connection with **[Z] (a)**, location of antennas on a tower was well-known in the art; and these differences do not patentably distinguish the claim from the proposed count); and wording of **[Z]** (see '744 25).
II	'744 28	Claim includes additional limitations of **[AA]** (see '744 26) and **[CC]** "said main controller is located at a base of said tower" (locating a

		controller at an accessible portion of a structure on which physical components being controlled are located was well-known in the art and does not patentably distinguish the claim from the proposed count); and wording of **[Z]** (see '744 25).
II	'744 29	Claim includes additional limitations of **[AA]** (see '744 26) and **[DD]** "a remote user interface communicating with said main controller for controlling said main controller to change said antenna positions" (as discussed in connection with limitation **[E]** (see '896 5), a user interface being remotely located from a controller was well-known in the art and does not distinguish the claim from the proposed count); and wording of **[Z]** (see '744 25).
II	'744 30	Claim includes additional limitations of **[F]** (see '896 6), **[AA]** (see '744 26) and **[DD]** (see '744 29), and wording of **[Z]** (see '744 25).
II	'744 31	Claim includes additional limitations of **[G]** (see '896 7), **[AA]** (see '744 26) and **[DD]** (see '744 29), and wording of **[Z]** (see '744 25).
II	'744 32	Claim includes additional limitations of **[EE]** "a plurality of motor driving assemblies for adjusting said antenna positions" and **[FF]** "each of said plurality of motor driving assemblies are controlled by respective ones of said plurality of antenna controllers" (as discussed in connection with limitations **[K]** and **[L]** (see '896 10) and **[U]** and **[V]** (see '744 21), a controller controlling a motor for adjusting the position of a physical component being controlled was well-known in the art and does not patentably distinguish the claim from the proposed count), and wording of **[Z]** (see '744 25).
II	'155 31	Claim is identical in scope to proposed count.
II	'155 32	Claim includes additional limitation of **[Q]** (see '744 16).
II	'155 33	Claim includes additional limitation of **[R]** (see '744 17).
II	'155 34	Claim includes additional limitation of **[S]** (see '744 18).
II	'155 35	Claim includes additional limitation of **[T]** (see '744 19).
II	'155 36	Claim includes additional limitation of **[J]** (see '896 9).
II	'155 37	Claim includes additional limitations of **[U]** (see '744 21) and **[V]** (see '744 21).
II	'155 38	Claim includes wording of **[Z]** (see '744 25).
II	'155 39	Claim includes additional limitation of **[AA]** (see '744 26), and wording of **[Z]** (see '744 25).
II	'155 40	Claim includes additional limitation of **[BB]** (see '744 27), and wording of **[Z]** (see '744 25).
II	'155 41	Claim includes additional limitations of **[EE]** (see '744 32) and **[FF]** (see '744 32), and wording of **[Z]** (see '744 25).
III	'896 22	Claim is identical is scope to proposed count.
III	'896 31	Claim includes additional limitations of **[A]** (see '896 1), **[E]** (see '896 5), **[H]** (see '896 8) and **[I]** (see '896 8), and wording of **[M]** (see '896 26).
III	'155 58	Claim is identical is scope to proposed count.

IV	'896 23	Claim is identical is scope to proposed count.
IV	'896 32	Claim includes additional limitations of **[A]** (see '896 1), **[E]** (see '896 5), **[H]** (see '896 8) and **[I]** (see '896 8), and wording of **[M]** (see '896 26).
IV	'155 59	Claim is identical is scope to proposed count.
V	'744 33	Claim is identical in scope to proposed count.
V	'744 34	Claim includes additional limitation of **[GG]** "each of said plurality of sensors is an incremental encoder sensor that detects each step of said gear train." A sensor to detect incremental steps was well-known in the art, and does not patentably distinguish the claim from the proposed count.
V	'744 35	Claim includes additional limitations of **[HH]** "said gear train of phase shifters includes an optical encoder gear at an end of said gear train" and **[II]** "each of said plurality of sensors is an optical sensor which incrementally counts movements of said optical encoder gear." An optical sensor to incrementally count movements of a gear in a gear train was well-known in the art, and does not patentably distinguish the claim from the proposed count.
V	'744 36	Claim includes additional limitation of **[JJ]** "each of said plurality of sensors comprises a mechanical brush, wherein said gear train includes a gear with a trace contact disposed on said gear, and wherein said mechanical brush detects said antenna position according to said trace contact." A sensor that uses a brush to make contact with a rotating gear was well-known in the art, and does not patentably distinguish the claim from the proposed count.
V	'744 37	Claim includes additional limitation of **[KK]** "each of said plurality of sensors comprises an electromagnetic relay hall effect sensor to detect a position of a gear on said gear train." A Hall effect sensor to detect a physical orientation of a gear was well-known in the art, and does not patentably distinguish the claim from the proposed count.
V	'155 42	Claim is identical in scope to proposed count.
VI	'896 11	Claim is identical in scope to proposed count.
VI	'896 12	Claim includes additional limitations of **[LL]** "reading the newly adjusted tilt position of the down-tilt antenna via a sensor" and **[MM]** "writing the newly adjusted tilt position as the tilt position in the memory of the antenna controller." In controlling the position of a physical component, sensing a newly adjusted position and replacing the corresponding value for that position in memory with the new value was well-known in the art, and does not patentably distinguish the claim from the proposed count.
VI	'744 38	Claim's preamble recites a sensor, and wording of the claim is rearranged slightly from the proposed count but is not patentably distinguishing.
VI	'744 39	Claim includes additional limitations of **[LL]** (see '896 12) and **[MM]**

		(see '896 12).
VI	'155 43	Claim's preamble recites a sensor, and wording of the claim is rearranged slightly from the proposed count but is not patentably distinguishing.
VI	'155 44	Claim includes additional limitations of **[LL]** (see '896 12) and **[MM]** (see '896 12).
VI	'155 54	Claim is identical in scope to proposed count.
VI	'155 55	Claim includes additional limitations of **[LL]** (see '896 12) and **[MM]** (see '896 12).
VII	'896 13	Claim is identical in scope to proposed count.
VII	'896 14	Claim includes additional limitations of **[NN]** repeating the steps for a system check a specified number of times if the addressed antenna controller did not respond, **[OO]** recording that it did not respond if the specified number of times is met, **[PP]** determining whether it understood the antenna check command if it did respond, **[QQ]** repeating all of the steps a predetermined number of times if it did not understand the antenna check command and recording that it did not understand if the predetermined number of times is met, and **[RR]** determining whether all of the antenna controllers have been polled if the addressed antenna controller did understand the antenna check command. These steps of repeating a check loop a predetermined number of times, recording if a controller being polled did not respond or did not understand, and determining whether all of the controllers have been polled were well-known in the art, and do not patentably distinguish the claim from the proposed count.
VII	'896 15	Claim includes additional limitations of **[NN]** (see '896 14), **[OO]** (see '896 14), **[PP]** (see '896 14), **[QQ]** (see '896 14), **[RR]** (see '896 14) and **[SS]** repeating the steps for a system check for all of the plurality of antenna controllers. Repeating for each of a plurality of controllers a loop designed to check any one of the plurality of controllers was well-known in the art, and does not patentably distinguish the claim from the proposed count.
VII	'896 16	Claim includes additional limitations of **[NN]** (see '896 14), **[OO]** (see '896 14), **[PP]** (see '896 14), **[QQ]** (see '896 14), **[RR]** (see '896 14), **[SS]** (see '896 15), **[TT]** reporting which, if any, antenna controllers did not respond or did not recognize the antenna check command, and **[UU]** reporting a system error if all of the antenna controllers did not respond or did not recognize the antenna check command. Reporting which if any controllers being polled did not respond or did not recognize the command, and reporting a system error if all controllers being polled did not respond or did not recognize the command, were well-known in the art and do not patentably distinguish the claim from the proposed count.
VII	'896 17	Claim includes additional limitations of **[NN]** (see '896 14), **[OO]** (see '896 14), **[PP]** (see '896 14), **[QQ]** (see '896 14), **[RR]** (see '896 14), **[VV]** prompting the user whether to check any other antenna controller

		address, and **[WW]** repeating the steps for a system check for each antenna controller address on which the user desires to perform a system check. Prompting a user to indicate where a check should be performed, and then performing it where the user so indicates, were well-known in the art and do not patentably distinguish the claim from the proposed count.
VII	'744 40	Wording of the claim is rearranged slightly from the proposed count but is not patentably distinguishing.
VII	'744 41	Claim includes additional limitations of **[NN]** (see '896 14), **[OO]** (see '896 14), **[PP]** (see '896 14), **[QQ]** (see '896 14) and **[RR]** (see '896 14).
VII	'744 42	Claim includes additional limitations of **[NN]** (see '896 14), **[OO]** (see '896 14), **[PP]** (see '896 14), **[QQ]** (see '896 14), **[RR]** (see '896 14) and **[SS]** (see '896 15).
VII	'744 43	Claim includes additional limitations of **[NN]** (see '896 14), **[OO]** (see '896 14), **[PP]** (see '896 14), **[QQ]** (see '896 14), **[RR]** (see '896 14), **[SS]** (see '896 15), **[TT]** (see '896 16) and **[UU]** (see '896 16).
VII	'744 44	Claim includes additional limitations of **[NN]** (see '896 14), **[OO]** (see '896 14), **[PP]** (see '896 14), **[QQ]** (see '896 14), **[RR]** (see '896 14), **[VV]** (see '896 17) and **[WW]** (see '896 17).
VII	'155 45	Wording of the claim is rearranged slightly from the proposed count but is not patentably distinguishing.
VII	'155 56	Claim is identical in scope to proposed count.
VIII	'896 24	Claim is identical in scope to proposed count.
VIII	'155 60	Claim is identical in scope to proposed count.
IX	'896 25	Claim is identical in scope to proposed count.
IX	'155 61	Claim is identical in scope to proposed count.

ATTACHMENT C
For Each Proposed Count,
Comparing at least one Claim of Each Party Corresponding to Proposed Count

(pursuant to 37 CFR §41.202(a)(3))

Proposed Count I

'155 Application	'896 Patent	'744 Patent
22. An antenna control system for a land-based mobile radio system comprising:		1. An antenna control system for a land-based mobile radio system comprising:
a sensor for detecting a position of a down-tilt antenna with respect to cell coverage and without respect to a satellite position;		a sensor for detecting a position of a down-tilt antenna with respect to cell coverage; [see explanation **N** for '744 1 in Attachment B]
an antenna controller communicating with said sensor for controlling said antenna position; and		an antenna controller communicating with said sensor for controlling said antenna position; and
a main controller communicating with said antenna controller in order to control said antenna controller.		a main controller communicating with said antenna controller in order to control said antenna controller.
47. An antenna control system comprising:	1. An antenna control system comprising:	
a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;	a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;	
an antenna controller communicating with said sensor for controlling said antenna position;	An antenna controller communicating with said sensor for controlling said antenna position;	
a main controller communicating with said antenna controller in order to control said antenna controller; and	a main controller communicating with said antenna controller in order to control said antenna controller; and	
a user interface communicating with said main controller to operate said main controller.	a user interface communicating with said main controller to operate said main controller.	

Proposed Count II

'155 Application	'896 Patent	'744 Patent
31. An antenna control system for controlling a plurality of antennas comprising:		13. An antenna control system for controlling a plurality of antennas comprising:
a plurality of sensors each for detecting positions of a respective one of said antennas;		a plurality of sensors each for detecting positions of a respective one of said antennas;
a plurality of antenna controllers each communicating with corresponding sensors of said plurality of sensors for controlling a position of said associated antenna; and		a plurality of antenna controllers each communicating with corresponding sensors of said plurality of sensors for controlling a position of said associated antenna; and
a main controller communicating with said antenna controllers in order to control said antenna controllers.		a main controller communicating with said antenna controllers in order to control said antenna controllers.

Proposed Count III

'155 Application	'896 Patent	'744 Patent
58 [47]. An antenna control system comprising:	22 [1]. An antenna control system comprising:	
a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;	a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;	
an antenna controller communicating with said sensor for controlling said antenna position;	an antenna controller communicating with said sensor for controlling said antenna position;	
a main controller communicating with said antenna controller in order to control said antenna controller; and	a main controller communicating with said antenna controller in order to control said antenna controller; and	
a user interface communicating with said main controller to operate said main controller [.]	a user interface communicating with said main controller to operate said main controller [.]	
[58. The antenna control system according to claim 47], wherein the position of the down-tilt antenna is an electrical down-tilt.	[22. The antenna control system according to claim 1], wherein the position of the down-tilt antenna is an electrical down-tilt.	

Proposed Count IV

'155 Application	'896 Patent	'744 Patent
59 [47]. An antenna control system comprising:	23 [1]. An antenna control system comprising:	
a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;	a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;	
an antenna controller communicating with said sensor for controlling said antenna position;	An antenna controller communicating with said sensor for controlling said antenna position;	
a main controller communicating with said antenna controller in order to control said antenna controller; and	a main controller communicating with said antenna controller in order to control said antenna controller; and	
a user interface communicating with said main controller to operate said main controller [.]	a user interface communicating with said main controller to operate said main controller [.]	
[59. The antenna control system according to claim 47], wherein the position of the down-tilt antenna is a position of at least one phase shifter.	[23. The antenna control system according to claim 1], wherein the position of the down-tilt antenna is a position of at least one phase shifter.	

Proposed Count V

'155 Application	'896 Patent	'744 Patent
42 [38]. An antenna control system for controlling a plurality of antennas located on a tower, each antenna having a position, said antenna control system comprising:		33 [25]. An antenna control system for controlling a plurality of antennas located on a tower, each antenna having a position, said antenna control system comprising:
a plurality of sensors, each sensor associated with one of said plurality of antennas for detecting said antenna positions;		a plurality of sensors, each sensor associated with one of said plurality of antennas for detecting said antenna positions;
a plurality of antenna controllers each connected to a respective one of said plurality of sensors for reading said detected antenna positions and for adjusting said antenna positions based on said detected antenna positions; and		a plurality of antenna controllers each connected to a respective one of said plurality of sensors for reading said detected antenna positions and for adjusting said antenna positions based on said detected antenna positions; and
a main controller communicating with said plurality of antenna controllers for controlling said plurality of antenna controllers to adjust said antenna positions [.]		a main controller communicating with said plurality of antenna controllers for controlling said plurality of antenna controllers to adjust said antenna positions [.]
[41. The antenna control system according to claim 38, further comprising], a plurality of motor driving assemblies for adjusting said antenna positions,		[32. The antenna control system according to claim 25, further comprising], a plurality of motor driving assemblies for adjusting said antenna positions,
wherein each of said plurality of motor driving assemblies are controlled by respective ones of said plurality of antenna controllers [.]		wherein each of said plurality of motor driving assemblies are controlled by respective ones of said plurality of antenna controllers [.]
[42. The antenna control system according to claim 41], wherein the motor		[33. The antenna control system according to claim 32], wherein the motor

driving assemblies comprise a gear train of phase shifters to steer radiation emitted from said antennas; a stepper motor to drive said gear train of phase shifters; a gear shaft disposed between said gear train and said stepper motor; and a stepper-motor-driver for powering said stepper motor.		driving assemblies comprise a gear train of phase shifters to steer radiation emitted from said antennas; a stepper motor to drive said gear train of phase shifters; a gear shaft disposed between said gear train and said stepper motor; and a stepper-motor-driver for powering said stepper motor.

Proposed Count VI

'155 Application	'896 Patent	'744 Patent
54. A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:	11. A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:	38. A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said antenna control system including a main controller, an antenna controller, an antenna motor driver assembly, and a sensor, said method comprising:
(A) establishing a current position of the down-tilt antenna by;	(A) establishing a current position of the down-tilt antenna by;	(A) establishing a current position of said down-tilt antenna by;
(i) sending an antenna check command to an antenna controller,	(i) sending an antenna check command to an antenna controller,	(i) sending an antenna check command to said antenna controller,
(ii) reading a tilt position stored in a memory of the antenna controller, and	(ii) reading a tilt position stored in a memory of the antenna controller, and	(ii) reading a tilt position stored in a memory of said antenna controller, and
(iii) sending the tilt position read from the memory to a main controller; and	(iii) sending the tilt position read from the memory to a main controller; and	(iii) sending the tilt position read from said memory to said main controller; and
(B) adjusting the tilt of the down-tilt antenna by;	(B) adjusting the tilt of the down-tilt antenna by;	(B) adjusting the tilt of the down-tilt antenna by;
(i) sending a change-tilt command to the main controller,	(i) sending a change-tilt command to the main controller,	(i) sending a change-tilt command to said main controller,
(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and	(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and	(ii) calculating a difference between said tilt position and said change-tilt command to determine an antenna adjust command, and
(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna.	(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna.	(iii) sending said antenna adjust command to said antenna motor driver assembly to adjust the tilt of the down-tilt antenna.

Proposed Count VII

'155 Application	'896 Patent	'744 Patent
56. A method of performing a system check on a tilt antenna control system, said method comprising the steps of:	13. A method of performing a system check on a tilt antenna control system, said method comprising the steps of:	40. A method of performing a system check on a tilt antenna control system having a main controller, a plurality of antenna controllers, and a user interface, said method comprising:
(A) requesting a system check by a user via a user interface;	(A) requesting a system check by a user via a user interface;	(A) requesting a system check by a user via said user interface;
(B) transmitting an antenna check command from a main controller to an addressed one of a plurality of antenna controllers;	(B) transmitting an antenna check command from a main controller to an addressed one of a plurality of antenna controllers;	(B) transmitting an antenna check command from said main controller to an addressed one of said plurality of antenna controllers;
(C) returning an antenna position from the addressed antenna controller to the main controller; and	(C) returning an antenna position from the addressed antenna controller to the main controller; and	(C) returning an antenna position from said addressed antenna controller to said main controller; and
(D) determining whether the addressed antenna controller responded.	(D) determining whether the addressed antenna controller responded.	(D) determining whether the addressed antenna controller responded.

Proposed Count VIII

'155 Application	'896 Patent	'744 Patent
60 [54]. A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:	24 [11]. A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:	
(A) establishing a current position of the down-tilt antenna by;	(A) establishing a current position of the down-tilt antenna by;	
(i) sending an antenna check command to an antenna controller,	(i) sending an antenna check command to an antenna controller,	
(ii) reading a tilt position stored in a memory of the antenna controller, and	(ii) reading a tilt position stored in a memory of the antenna controller, and	
(iii) sending the tilt position read from the memory to a main controller; and	(iii) sending the tilt position read from the memory to a main controller; and	
(B) adjusting the tilt of the down-tilt antenna by;	(B) adjusting the tilt of the down-tilt antenna by;	
(i) sending a change-tilt command to the main controller,	(i) sending a change-tilt command to the main controller,	
(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and	(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and	
(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna.	(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna.	
[60. The method according to claim 54], wherein the tilt position is an electrical down-tilt.	[24. The method according to claim 11], wherein the tilt position is an electrical down-tilt.	

Proposed Count IX

'155 Application	'896 Patent	'744 Patent
61 [54]. A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:	25 [11]. A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:	
(A) establishing a current position of the down-tilt antenna by;	(A) establishing a current position of the down-tilt antenna by;	
(i) sending an antenna check command to an antenna controller,	(i) sending an antenna check command to an antenna controller,	
(ii) reading a tilt position stored in a memory of the antenna controller, and	(ii) reading a tilt position stored in a memory of the antenna controller, and	
(iii) sending the tilt position read from the memory to a main controller; and	(iii) sending the tilt position read from the memory to a main controller; and	
(B) adjusting the tilt of the down-tilt antenna by;	(B) adjusting the tilt of the down-tilt antenna by;	
(i) sending a change-tilt command to the main controller,	(i) sending a change-tilt command to the main controller,	
(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and	(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and	
(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna [.]	(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna [.]	
[61. The method according to claim 54], wherein the tilt position is a position of at least one phase shifter.	[25. The method according to claim 11], wherein the tilt position is a position of at least one phase shifter.	

ATTACHMENT D

Disclosure of Subject Matter of Each Proposed Count

(pursuant to 37 CFR §41.202(a)(6))

Proposed Count I	**PCT/NZ95/00106**	**NZ 272778**
An antenna control system comprising:	For example, 1:3-5; 22:1-3.	For example, 2:1-5.
a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;	For example, 11:21-24; 14:4-9; Figs. 5 and 6. Antenna down-tilt is controlled by movement of phase shifters, which is sensed by switch 43 and magnets 44.	For example, 14:12-14; 17:5-10; Figs. 5 and 6. Antenna down-tilt is controlled by movement of phase shifters, which is sensed by switch 43 and magnets 44.
an antenna controller communicating with said sensor for controlling said antenna position; and	For example, 7:1-5; 14:18 - 15:9; Figs. 7 and 8. Signals changed by switch 43 are provided to controller 80 for controlling antenna position.	For example, 9:2-6; 17:18 – 18:15; Figs. 7 and 8. Signals changed by switch 43 are provided to controller 80 for controlling antenna position.
a main controller communicating with said antenna controller in order to control said antenna controller.	For example, 18:1-19; Fig. 8. Central controller 89 communicates with controller 80.	For example, 22:1-14; Fig. 8. Central controller 89 communicates with controller 80.
Proposed Count II	**PCT/NZ95/00106**	**NZ 272778**
An antenna control system for controlling a plurality of antennas comprising:	For example, 1:3-5; 6:18-20 ("one or more"); 18:12-15 ("adjust the downtilt of antennas at a celluar base station"); 18:25 – 19:5 is part of a description of a system with multiple antennas.	For example, 2:1-5; 8:12-14 ("one or more"); 22:9-11 ("adjust the downtilt of antennas at a celluar base station").
a plurality of sensors each for detecting positions of a respective one of said antennas;	For example, 11:21-24; 14:4-9; Figs. 5 and 6 re sensor associated with each antenna. Antenna down-tilt is controlled by movement of phase shifters, which is sensed by switch 43 and magnets 44.	For example, 14:12-14; 17:5-10; Figs. 5 and 6 re sensor associated with each antenna. Antenna down-tilt is controlled by movement of phase shifters, which is sensed by switch 43 and magnets 44.
a plurality of antenna controllers each communicating with corresponding sensors of said plurality of sensors for controlling a position of said associated antenna; and	For example, 7:1-5; 14:18 - 15:9; Figs. 7 and 8. Signals changed by switch 43 are provided to controller 80 for controlling antenna position. For example, 6:28-32 (plurality of systems for a number of cellular base stations); see also 6:18-23 where a disclosed antenna system may comprise one antenna (6:19) and a controller (6:21). For example, see	For example, 9:2-6; 17:18 – 18:15; Figs. 7 and 8. Signals changed by switch 43 are provided to controller 80 for controlling antenna position. For example, 8:22 – 9:2 (plurality of systems for a number of cellular base stations); see also 8:12-17 where a disclosed antenna system may comprise one antenna (8:13) and a controller (8:15).

	also 19:8 – 20:11 describing functions such as current angle, new value, adjust, and measure whereby controller is connected to sensor for reading detected antenna position and for adjusting antenna position based on detected antenna position. For example, 27:3-8 (original claim 21) in combination with 26:20-24 (original claim 18) describes a plurality of antenna systems at a plurality of sites with a plurality of controllers, with each system having the controller communicating with a sensor for detecting an antenna position.	
a main controller communicating with said antenna controllers in order to control said antenna controllers.	For example, 6:28-32 (plurality of centrally controlled systems, 6:29-30); 27:3-8 (original claim 21).	For example, 8:22 – 9:2 (plurality of centrally controlled systems, 8:23 – 9:1).
Proposed Count III	**PCT/NZ95/00106**	**NZ 272778**
An antenna control system comprising:	For example, 1:3-5; 22:1-3.	For example, 2:1-5.
a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;	For example, 11:21-24; 14:4-9; Figs. 5 and 6. Antenna down-tilt is controlled by movement of phase shifters, which is sensed by switch 43 and magnets 44.	For example, 14:12-14; 17:5-10; Figs. 5 and 6. Antenna down-tilt is controlled by movement of phase shifters, which is sensed by switch 43 and magnets 44.
an antenna controller communicating with said sensor for controlling said antenna position;	For example, 7:1-5; 14:18 - 15:9; Figs. 7 and 8. Signals changed by switch 43 are provided to controller 80 for controlling antenna position.	For example, 9:2-6; 17:18 – 18:15; Figs. 7 and 8. Signals changed by switch 43 are provided to controller 80 for controlling antenna position.
a main controller communicating with said antenna controller in order to control said antenna controller;	For example, 18:1-19; Fig. 8. Central controller 89 communicates with controller 80.	For example, 22:1-14; Fig. 8. Central controller 89 communicates with controller 80.
a user interface communicating with said main controller to operate said main controller;	A user interface communicating with the central controller 89 is inherent, as a display and user "buttons" for "up," "down," "enter," etc. are disclosed to select functions and values (see e.g. 15:13-33), and "the	A user interface communicating with the central controller 89 is inherent, as a display and user "buttons" for "up," "down," "enter," etc. are disclosed to select functions and values (see e.g. 18:16

	functions previously discussed may be effected remotely at central controller 89" (18:6-8). See also, for example, 18:20 – 21:9. Central controller 89 may be a PC running windows based software (18:20-22), indicating communication with a user interface. In addition, the cited pages include several references to user interaction as well as to a screen (18:22) and a mouse (20:13).	– 19:11), and "the functions previously discussed may be effected remotely at central controller 89" (22:4-5).
wherein the position of the down-tilt antenna is an electrical down-tilt.	For example, 7:1-2.	For example, 9:3-4.
Proposed Count IV	**PCT/NZ95/00106**	**NZ 272778**
An antenna control system comprising:	For example, 1:3-5; 22:1-3.	For example, 2:1-5.
a sensor for detecting a position of a down-tilt antenna without respect to a satellite position;	For example, 11:21-24; 14:4-9; Figs. 5 and 6. Antenna down-tilt is controlled by movement of phase shifters, which is sensed by switch 43 and magnets 44.	For example, 14:12-14; 17:5-10; Figs. 5 and 6. Antenna down-tilt is controlled by movement of phase shifters, which is sensed by switch 43 and magnets 44.
an antenna controller communicating with said sensor for controlling said antenna position;	For example, 7:1-5; 14:18 - 15:9; Figs. 7 and 8. Signals changed by switch 43 are provided to controller 80 for controlling antenna position.	For example, 9:2-6; 17:18 – 18:15; Figs. 7 and 8. Signals changed by switch 43 are provided to controller 80 for controlling antenna position.
a main controller communicating with said antenna controller in order to control said antenna controller;	For example, 18:1-19; Fig. 8. Central controller 89 communicates with controller 80.	For example, 22:1-14; Fig. 8. Central controller 89 communicates with controller 80.
a user interface communicating with said main controller to operate said main controller;	A user interface communicating with the central controller 89 is inherent, as a display and user "buttons" for "up," "down," "enter," etc. are disclosed to select functions and values (see e.g. 15:13-33), and "the functions previously discussed may be effected remotely at central controller 89" (18:6-8). See also, for example, 18:20 – 21:9. Central controller 89 may be a PC running windows based software (18:20-22), indicating communication with a	A user interface communicating with the central controller 89 is inherent, as a display and user "buttons" for "up," "down," "enter," etc. are disclosed to select functions and values (see e.g. 18:16 – 19:11), and "the functions previously discussed may be effected remotely at central controller 89" (22:4-5).

	user interface. In addition, the cited pages include several references to user interaction as well as to a screen (18:22) and a mouse (20:13).	
wherein the position of the down-tilt antenna is a position of at least one phase shifter.	For example, 3:25-27; 4:1-4.	For example, 4:22 – 5:1; 5:6-9.
Proposed Count V	**PCT/NZ95/00106**	**NZ 272778**
An antenna control system for controlling a plurality of antennas located on a tower, each antenna having a position, said antenna control system comprising:	For example, 1:3-5; 6:18-20 ("one or more"); 18:12-15 ("adjust the downtilt of antennas at a celluar base station"); 18:25 – 19:7 is part of a description of a system with multiple antennas; 1:15-17 antennas located on side of building or similar structures (eg a tower).	For example, 2:1-5; 8:12-14 ("one or more"); 22:9-11 ("adjust the downtilt of antennas at a celluar base station"); 2:11-1317 antennas located on side of building or similar structures (eg a tower).
a plurality of sensors, each sensor associated with one of said plurality of antennas for detecting said antenna positions;	For example, 11:21-24; 14:4-9; Figs. 5 and 6 re sensor associated with each antenna. Antenna down-tilt is controlled by movement of phase shifters, which is sensed by switch 43 and magnets 44.	For example, 14:12-14; 17:5-10; Figs. 5 and 6 re sensor associated with each antenna. Antenna down-tilt is controlled by movement of phase shifters, which is sensed by switch 43 and magnets 44.
a plurality of antenna controllers each connected to a respective one of said plurality of sensors for reading said detected antenna positions and for adjusting said antenna positions based on said detected antenna positions;	For example, 7:1-5; 14:18 - 15:9; Figs. 7 and 8. Signals changed by switch 43 are provided to controller 80 for controlling antenna position. For example, 6:28-32 (plurality of systems for a number of cellular base stations); see also 6:18-23 where a disclosed antenna system may comprise one antenna (6:19) and a controller (6:21). For example, see also 19:8 – 20:11 describing functions such as current angle, new value, adjust, and measure whereby controller is connected to sensor for reading detected antenna position and for adjusting antenna position based on detected antenna position. For example, 27:3-8 (original claim 21) in combination with 26:20-24 (original claim 18) describes a plurality of antenna systems at a	For example, 9:2-6; 17:18 – 18:15; Figs. 7 and 8. Signals changed by switch 43 are provided to controller 80 for controlling antenna position. For example, 8:22 – 9:2 (plurality of systems for a number of cellular base stations); see also 8:12-17 where a disclosed antenna system may comprise one antenna (8:13) and a controller (8:15).

	plurality of sites with a plurality of controllers, with each system having the controller communicating with a sensor for detecting an antenna position.	
a main controller communicating with said plurality of antenna controllers for controlling said plurality of antenna controllers to adjust said antenna positions;	For example, 6:28-32 (plurality of centrally controlled systems, 6:29-30); 27:3-8 (original claim 21).	For example, 8:22 – 9:2 (plurality of centrally controlled systems, 8:23 – 9:1).
a plurality of motor driving assemblies for adjusting said antenna positions, wherein each of said plurality of motor driving assemblies are controlled by respective ones of said plurality of antenna controllers;	For example, 16:9-12 ("controller 80 may then provide current to motor 41… to alter the downtilt"); Figs. 5 and 6 show parts of an example of a motor driving assembly for adjusting antenna position (Figs. 3 and 4 show part of another example); Figs. 7 and 8 show an example of controller 80 controlling motor 41. For example, 27:3-8 (original claim 21) in combination with 26:4-9 (original claim 14).	For example, 20:1-3 ("controller 80 may then provide current to motor 41… to alter the downtilt"); Figs. 5 and 6 show parts of an example of a motor driving assembly for adjusting antenna position (Figs. 3 and 4 show part of another example); Figs. 7 and 8 show an example of controller 80 controlling motor 41.
wherein the motor driving assemblies comprise a gear train of phase shifters to steer radiation emitted from said antennas;	For example, 5:1-22; 10:1-7; Figs. 3 and 4.	For example, 6:12 – 7:7; 12:13-19; Figs. 3 and 4.
a stepper motor to drive said gear train of phase shifters;	For example, 10:28.	For example, 13:12.
a gear shaft disposed between said gear train and said stepper motor; and	For example, 10:25-27; see shaft above gear wheel 27 in Fig. 3.	For example, 13:10-11; see shaft above gear wheel 27 in Fig. 3.
a stepper-motor-driver for powering said stepper motor.	For example, 6:21-23; Figs. 7 and 8 (driver is in controller 80).	For example, 8:15-17; Figs. 7 and 8 (driver is in controller 80).
Proposed Count VI	**PCT/NZ95/00106**	**NZ 272778**
A method of positioning a down-tilt antenna in an	For example, 1:3-5; 22:1-3 (cellular communication systems can be land-based mobile communications).	For example, 2:1-5.

antenna control system used in land-based mobile communications, said method comprising the steps of:		
(A) establishing a current position of the down-tilt antenna by;	For example, 16:19-20;19:14-17.	For example, 20:9-10.
(i) sending an antenna check command to an antenna controller,	For example, 16:19-20; 18:1-8 (can perform functions remotely); 19:16-17 (as current angle is communicated from antenna controller 80 to central controller 89 at start-up, then start-up must include sending a check command to antenna controller signaling that the current angle should be sent to central controller).	For example, 20:9-10; 22:1-5 (can perform functions remotely).
(ii) reading a tilt position stored in a memory of the antenna controller, and	For example, 17:6-7 (current angle can be stored in memory of antenna controller, from where it may be read for sending to central controller).	For example, 21:2-3 (current angle can be stored in memory of antenna controller, from where it may be read for sending to central controller).
(iii) sending the tilt position read from the memory to a main controller; and	For example, 19:14-16.	Sending the tilt position to the central controller 89 is inherent, where checking the tilt position is a disclosed function (20:9-10), the position is stored in memory (21:2-3), and the function may be performed remotely (22:1-5).
(B) adjusting the tilt of the down-tilt antenna by;		
(i) sending a change-tilt command to the main controller,	For example, 16:1-12; 18:1-8 (can perform functions remotely); 20:3-5 (with adjust function, user communicates a new angle to central controller).	For example, 19:16 – 20:3; 22:1-5 (can perform functions remotely).
(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and	For example, 16:8-15 (based on new angle entered, current angle is altered by motor driven in desired direction for predetermined number of pulses to achieve the new angle – the desired direction and predetermined number of pulses	For example, 19:23 – 20:6 (based on new angle entered, current angle is altered by motor driven in desired direction for predetermined number of pulses to achieve the new angle – the desired direction and predetermined number of pulses

	correspond with the difference between the current angle and the new angle, and must be determined).	correspond with the difference between the current angle and the new angle, and must be determined).
(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna.	For example, 16:8-15 (the desired direction and predetermined number of pulses must be communicated to the motor driver assembly (such as in Fig. 6)); 18:6-8 (the adjust command may be effected remotely at central controller).	For example, 19:23 – 20:6 (the desired direction and predetermined number of pulses must be communicated to the motor driver assembly (such as in Fig. 6)); 22:4-5 (the adjust command may be effected remotely at central controller).
Proposed Count VII	**PCT/NZ95/00106**	**NZ 272778**
A method of performing a system check on a tilt antenna control system, said method comprising the steps of:	For example, 16:19-20;19:14-17.	For example, 20:9-10.
(A) requesting a system check by a user via a user interface;	A user interface communicating with the central controller 89 is inherent, as a display and user "buttons" for "up," "down," "enter," etc. are disclosed to select functions and values (see e.g. 15:13-33), and "the functions previously discussed may be effected remotely at central controller 89" (18:6-8). For example, 19:23-25 and 20:9-11. For example, 27:3-8 (original claim 21) in combination with 26:28 – 27:2 (original claim 20) describes a central controller communicating with a plurality of antenna controllers; 18:20 –21:9 (several references to user interaction as well as to a screen (18:22) and a mouse (20:13), also central controller 89 may be a PC running windows based software (18:20-22), indicating communication with a user interface).	A user interface communicating with the central controller 89 is inherent, as a display and user "buttons" for "up," "down," "enter," etc. are disclosed to select functions and values (see e.g. 18:16 – 19:11), and "the functions previously discussed may be effected remotely at central controller 89" (22:4-5).
(B) transmitting an antenna check command from a main controller to an	For example, 16:19-20; 18:1-8 (can perform functions remotely); 19:16-17 (as current angle is communicated from antenna	For example, 20:9-10; 22:1-5 (can perform functions remotely).

addressed one of a plurality of antenna controllers;	controller 80 to central controller 89 at start-up, then start-up must include sending a check command to antenna controller signaling that the current angle should be sent to central controller). For example, 20:1-2 (user may specify the addressed antenna). As the actual angle of the antenna will be measured, the command will be transmitted from the central controller (interfacing with the user) to the addressed antenna controller.	
(C) returning an antenna position from the addressed antenna controller to the main controller; and	For example, 19:14-16; 17:6-9 in combination with 18:6-8 (actual angle updated in memory, and function may be effected remotely at central controller); 21:10-12 (information – ie actual angle – can be stored and updated at central controller).	Sending the tilt position to the central controller 89 is inherent, where checking the tilt position is a disclosed function (20:9-10), the position is stored in memory (21:2-3), and the function may be performed remotely (22:1-5).
(D) determining whether the addressed antenna controller responded.	For example, 20:12-16; 20:17 – 21:4 (eg if reported antenna status remains "queued" and does not proceed to "reading" or "measuring").	For example, 21:22-23.
Proposed Count VIII	**PCT/NZ95/00106**	**NZ 272778**
A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:	For example, 1:3-5; 22:1-3 (cellular communication systems can be land-based mobile communications).	For example, 2:1-5.
(A) establishing a current position of the down-tilt antenna by;	For example, 16:19-20;19:14-17.	For example, 20:9-10.
(i) sending an antenna check command to an antenna controller,	For example, 16:19-20; 18:1-8 (can perform functions remotely); 19:16-17 (as current angle is communicated from antenna controller 80 to central controller 89	For example, 20:9-10; 22:1-5 (can perform functions remotely).

	at start-up, then start-up must include sending a check command to antenna controller signaling that the current angle should be sent to central controller).	
(ii) reading a tilt position stored in a memory of the antenna controller, and	For example, 17:6-7 (current angle can be stored in memory of antenna controller, from where it may be read for sending to central controller).	For example, 21:2-3 (current angle can be stored in memory of antenna controller, from where it may be read for sending to central controller).
(iii) sending the tilt position read from the memory to a main controller; and	For example, 19:14-16.	Sending the tilt position to the central controller 89 is inherent, where checking the tilt position is a disclosed function (20:9-10), the position is stored in memory (21:2-3), and the function may be performed remotely (22:1-5).
(B) adjusting the tilt of the down-tilt antenna by;		
(i) sending a change-tilt command to the main controller,	For example, 16:1-12; 18:1-8 (can perform functions remotely); 20:3-5 (with adjust function, user communicates a new angle to central controller).	For example, 19:16 – 20:3; 22:1-5 (can perform functions remotely).
(ii) calculating a difference between the tilt position and the change-tilt command to determine an antenna adjust command, and	For example, 16:8-15 (based on new angle entered, current angle is altered by motor driven in desired direction for predetermined number of pulses to achieve the new angle – the desired direction and predetermined number of pulses correspond with the difference between the current angle and the new angle, and must be determined).	For example, 19:23 – 20:6 (based on new angle entered, current angle is altered by motor driven in desired direction for predetermined number of pulses to achieve the new angle – the desired direction and predetermined number of pulses correspond with the difference between the current angle and the new angle, and must be determined).
(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna;	For example, 16:8-15 (the desired direction and predetermined number of pulses must be communicated to the motor driver assembly (such as in Fig. 6)); 18:6-8 (the adjust command may be effected remotely at central controller).	For example, 19:23 – 20:6 (the desired direction and predetermined number of pulses must be communicated to the motor driver assembly (such as in Fig. 6)); 22:4-5 (the adjust command may be effected remotely at central controller).
wherein the tilt position is an electrical down-tilt.	For example, 7:1-2.	For example, 9:3-4.

Proposed Count IX	PCT/NZ95/00106	NZ 272778
A method of positioning a down-tilt antenna in an antenna control system used in land-based mobile communications, said method comprising the steps of:	For example, 1:3-5; 22:1-3 (cellular communication systems can be land-based mobile communications).	For example, 2:1-5.
(A) establishing a current position of the down-tilt antenna by;	For example, 16:19-20;19:14-17.	For example, 20:9-10.
(i) sending an antenna check command to an antenna controller,	For example, 16:19-20; 18:1-8 (can perform functions remotely); 19:16-17 (as current angle is communicated from antenna controller 80 to central controller 89 at start-up, then start-up must include sending a check command to antenna controller signaling that the current angle should be sent to central controller).	For example, 20:9-10; 22:1-5 (can perform functions remotely).
(ii) reading a tilt position stored in a memory of the antenna controller, and	For example, 17:6-7 (current angle can be stored in memory of antenna controller, from where it may be read for sending to central controller).	For example, 21:2-3 (current angle can be stored in memory of antenna controller, from where it may be read for sending to central controller).
(iii) sending the tilt position read from the memory to a main controller; and	For example, 19:14-16.	Sending the tilt position to the central controller 89 is inherent, where checking the tilt position is a disclosed function (20:9-10), the position is stored in memory (21:2-3), and the function may be performed remotely (22:1-5).
(B) adjusting the tilt of the down-tilt antenna by;		
(i) sending a change-tilt command to the main controller,	For example, 16:1-12; 18:1-8 (can perform functions remotely); 20:3-5 (with adjust function, user communicates a new angle to central controller).	For example, 19:16 – 20:3; 22:1-5 (can perform functions remotely).
(ii) calculating a difference between the tilt position and	For example, 16:8-15 (based on new angle entered, current angle is altered by motor driven in desired	For example, 19:23 – 20:6 (based on new angle entered, current angle is altered by motor driven in desired

the change-tilt command to determine an antenna adjust command, and	direction for predetermined number of pulses to achieve the new angle – the desired direction and predetermined number of pulses correspond with the difference between the current angle and the new angle, and must be determined).	direction for predetermined number of pulses to achieve the new angle – the desired direction and predetermined number of pulses correspond with the difference between the current angle and the new angle, and must be determined).
(iii) sending the antenna adjust command to an antenna motor driver assembly to adjust the tilt of the down-tilt antenna;	For example, 16:8-15 (the desired direction and predetermined number of pulses must be communicated to the motor driver assembly (such as in Fig. 6)); 18:6-8 (the adjust command may be effected remotely at central controller).	For example, 19:23 – 20:6 (the desired direction and predetermined number of pulses must be communicated to the motor driver assembly (such as in Fig. 6)); 22:4-5 (the adjust command may be effected remotely at central controller).
wherein the tilt position is a position of at least one phase shifter.	For example, 3:25-27; 4:1-4.	For example, 4:22 – 5:1; 5:69.